

8 November 1954

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File P101B

MEMORANDUM FOR: THE RECORD

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SUBJECT: Project Monitor on P-101B, Communications System,
Infrared

1. Time and Place of Meeting: The meeting was held November 2, 3, and 4, 1954 at [redacted]

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2. Attendance: [redacted]

3. Purpose of Meeting: To review the progress made on P-101B since 7 October and to expedite the present work

4. Discussion - Equipment

a. Field Test Results

Contact has been established at a distance of 4 3/4 miles without use of other communications, both at night and during daylight and under fair visibility conditions. It is felt that 6 miles ACW can be easily achieved since the equipment used at 4 3/4 miles was neither optimized equipment nor at the limit of its range.

b. Mechanical design

The mechanical design of the I. R. transceiver unit is well under way. The package is presently 5" x 14" x 14". This size encompasses all necessary accessories for the use of the equipment such as a two foot tripod, batteries, I. R. and optical viewers, etc.

The present design calls for the use of a rectangular 14" x 14" C-channel as the basis upon which the unit is assembled.

Around the edge of the C-channel will be the batteries, viewers,

amplifier

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amplifier and battery charger circuits, spare parts, microphone and headphone. In the center will be the folding optical system, built like a bellows camera. The front and rear edges of the C-channel will be fitted with O-ring seals and with watertight covers. The front cover will protect the optics, while the rear will protect the equipment controls and the optical system bellows. In the rear cover will be stored the tripod legs in sections and the yoke and sweep-find scanning equipment.

When the equipment is set up for operation, the rear cover with the three 2-foot legs will form a table. The yoke and search-find sweep gear hold the transceiver on this table. The search-find sweep gear allows a systematic search to be made of a 45° azimuth, 3° elevation sector. This "fine" adjustment" can be made at any point in the 20° azimuth and elevation sector which is obtained through use of the yoke. Horizontal and vertical circles calibrated in degrees are provided for pointing the equipment with respect to a landmark.

c. Electronics

Work on new amplifier circuits is well under way. Difficulty is being had with the transmitter circuit and battery charger circuits. Both difficulties are due to the rather close tolerances on the regulation of the circuits.

d. I. R. Viewers

Two separate non-classified viewers are being designed. The first is based on a WWII.3 kv British uni-potential tube. A complete viewer in breadboard using this tube has been built and is about 4 inches long and 3 inches in diameter. The power supply will operate from the 180 volt ~~B~~⁺ supply of the transceiver. Sensitivities of the order of the T-1, 2, 3 viewers is expected.

The second viewer using an IC16 tube is much more bulky and more sensitive. A breadboard of this unit is being built. It is as yet incomplete, but it will be about 3 inches in diameter by 6 inches long plus a power supply 2 x 3 x 4 inches.

Difficulties are being experienced obtaining both the British and IC16 tubes. British tubes sell for about \$8, but their availability and manufacturer are unknown. The IC16's sell for \$70 (performance not guaranteed) or \$180 (performance guaranteed) and are available from Farnsworth and RCA. More information will be obtained on these tubes.

e. Power Supply

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e. Power Supply

The power supply for the first four units will consist of silvercells, a vibrator supply and a battery charger for 110-220v 50-60 cycle operation.

The motor generator supply will be completed as a result of some favorable experimental results obtained by Maxim on silencing. Two units for operation on gasoline are to be completed. Possible consideration of the unit as a power source for the final 20 units is expected.

5. Discussion - Project Schedule

[] presently feels that the first four units cannot be completed by 31 December as scheduled. [] is presently scheduling delivery of the first four units for 7 February. APD feels that this delay is unavoidable and that the progress being made is satisfactory.

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APD has suggested that the limited use of overtime labor might help in maintaining the schedule in the future. [] will request permission for overtime work from the contracting officer.

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6. Actions:

a. [] will deliver four units by 7 February 1955.

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b. [] will request permission to use overtime from the contracting officer.

c. APD will make arrangements to extend the project time beyond 30 April 1955.

[]
TSS/APD

Distribution: ✓

Orig. - P-101B

1 - Chrono

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